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Enchelycore nycturanus, a new moray eel from South Africa (Teleostei: Anguilliformes: Muraenidae)

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Abstract

Enchelycore nycturanus, a new species of moray eel, is described from the east coast of South Africa. It has slightly arched jaws that leave some teeth exposed when the mouth is closed. It has triserial maxillary teeth, biserial mandibular teeth, and its intermaxillary teeth are in five rows. Along with the dentition, its vertebral count (147-148) and its color pattern of white spots on a dark background distinguish it from all other morays. It is known only from the type locality and may be restricted to South Africa.

Key words: Muraenidae, *Enchelycore*, South Africa, taxonomy, new species

Introduction

The Muraenidae (moray eels) is one of the most abundant and diverse of the eel families (Anguilliformes). Morays are especially common on and around coral reefs, although their cryptic habits keep them largely out of sight. Some 141 valid species are currently recognized in the Indo-Pacific (Böhlke and Smith, in press), but new species are continually being discovered. The taxonomy and classification of this family is in a state of flux, and many of the currently recognized genera are probably polyphyletic. The new species described here is placed in *Enchelycore* based on the current definition of that genus.

Methods

Counts and measurements are as in Böhlke (1989); values are given for the holotype, followed in parentheses by those for the SAIAB and USNM paratypes, respectively. Institutional abbreviations are as follows: SAIAB, South African Institute of Aquatic Biodiversity, Grahamstown, South Africa; USNM, National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.

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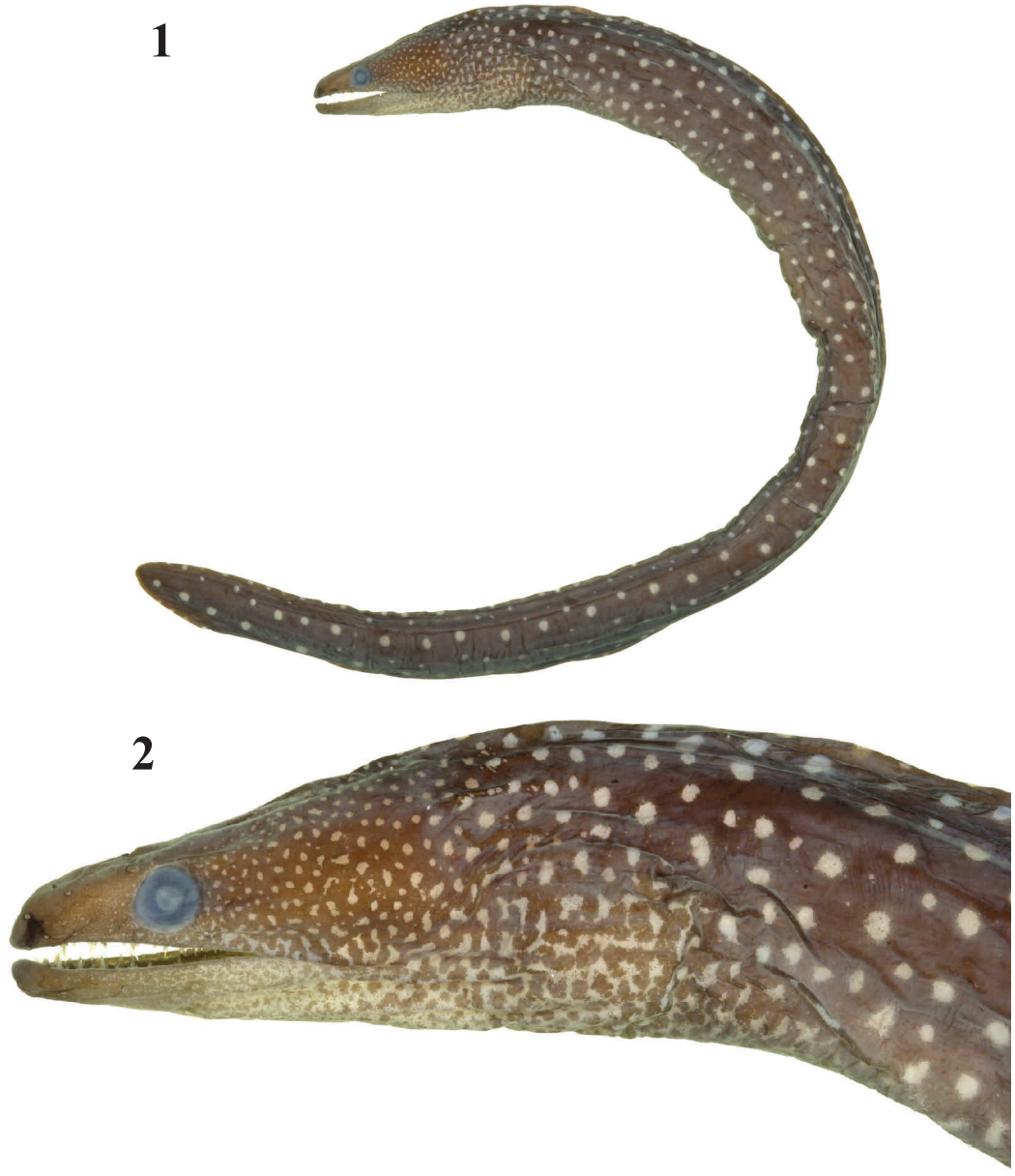
***Enchelycore nycturanus* sp. nov. (Figs. 1-3)**

Type material: holotype, SAIAB 46473 (223 mm TL), South Africa, Kwazulu-Natal, Aliwal Shoal, Hospital Reef, off Scottsburgh; 22 June 1994; C. Buxton et al.; paratypes, SAIAB 65489 (1, 206 mm) and USNM 369313 (1, 219 mm), same data as holotype.



FIGURES 1-2. *Enchelycore nycturanus* **sp. nov.** paratype, 219 mm TL, USNM 369313. 1, habitus; 2, head

Diagnosis. A moderately elongate moray of the subfamily Muraeninae, with color pattern of white spots on a dark brown background, spots becoming smaller and more closely spaced on head (Figs. 1, 2) Jaws arched, mouth not entirely closing. Intermaxillary teeth in five rows; maxillary teeth triserial, mandibular teeth biserial (Fig. 3). Vertebrae 5-6 predorsal, 53-56 preanal, 147-148 total.

Description. Moderately elongate, anus slightly anterior to midlength, dorsal-fin origin anterior to gill opening and slightly anterior to first branchial pore. Gill opening approximately mid-lateral. Eye over middle of gape. Anterior nostril tubular, reaching lip when depressed; posterior nostril round to slightly elliptical, with a slightly raised rim, located above anteriormost part of eye. Three supraorbital pores, the first (ethmoidal) just above upper lip, the second adjacent to base of anterior nostril, the third slightly anterior to midpoint between anterior and posterior nostril; four infraorbital pores along upper lip, the first adjacent to base of anterior nostril and the last directly below posterior edge of eye; six preoperculomandibular pores, all anterior to rictus; two branchial pores. Preanal length 2.5 (2.4, 2.4) head length 7.1 (7.5, 7.5), depth at gill opening 19 (21, 18) depth at anus 22 (23, 20), all in TL; snout 5.3 (5.5, 5.5) eye 10 (12, 10), upper jaw 2.4 (3.0, 2.3), all in head length. Predorsal vertebrae 5 (6, 5), preanal vertebrae 53 (56, 55), total vertebrae 147 (147, 148). Teeth (Fig. 3) slender, sharp, numerous. Intermaxillary tooth patch in five longitudinal rows: an outer series of small teeth around periphery of jaw, variable in size, somewhat staggered in arrangement, the larger teeth slightly medial to smaller teeth; an intermediate series of three long, depressible teeth on each side; a median series of three long, depressible teeth, increasing in size anterior to posterior. Maxillary teeth irregularly triserial; an inner series of ca. 10 large teeth, more or less in line with intermediate intermaxillary teeth; an intermediate series of ca. 15 somewhat smaller teeth; and an outer series of ca. 30 small, closely spaced teeth. Vomerine teeth small, uniserial, ca. 10. Mandibular teeth biserial; inner row of ca. 10 large, widely spaced teeth, the anterior ones largest, decreasing in size posteriorly; an outer series of ca. 38-44 small teeth, closely spaced and somewhat variable in size.

Ground color dark brown, with small to medium-size, round, white spots, not ocellated, extending onto fins. About three irregular rows of spots on most of body and tail, becoming smaller, more numerous, more irregularly shaped and more closely spaced on anterior body and head. On throat and chin, the white and brown markings reverse, with the spots breaking up and anastomosing, forming a pale background with small, irregular brown markings. Snout uniform brown; dorsal surface of anterior nostril tube darker brown; posterior nostril, supraorbital pores, and two anterior infraorbital pores with narrow dark rims.

The specimens range from 206 to 223 mm TL. None is mature, however, and the maximum size is unknown.

Comparison with other species. The arched jaws that do not completely close place this species in the genus *Enchelycore* as currently recognized. It is most similar to *Enche-*

lycore lichenosa (Jordan and Snyder, 1901) from Japan and the Galapagos. Like *E. nycturanus*, *E. lichenosa* has triserial maxillary teeth and intermaxillary teeth in five rows. A small specimen of *lichenosa* (USNM 71302, 198 mm TL) shows a very similar pattern of small white spots on a brown background, although magnification reveals them to be more irregular in shape. Anteriorly, however, the spots in *lichenosa* increase in size rather than decrease. *Enchelycore ramosa* (Griffin, 1926) has similar dentition and is found in the South Pacific from Australia to Easter Island; it has extensive white areas separated by dark reticulations. These three species have similar vertebral counts (147-148 for *E. nycturanus*, 136-149 for *E. lichenosa*, and 145-151 for *E. ramosa*; Böhlke, et al., 1989: 139; Randall and McCosker, 1975: 15) and may form a closely related group inhabiting the subtropical fringes of the Indo-Pacific faunal region. None has been recorded from waters near the equator, except for the incongruous records of *lichenosa* from the Galapagos Islands (McCosker and Rosenblatt, 1975), although it should be noted that the Galapagos have relatively cool waters. The Atlantic *E. anatina* has similar dentition and vertebral count (146-155), but its markings are more irregular, with "a complex pattern of pale areas colored with small dark spots, interspersed with smaller simple spots without dark centers, the spots rounded or with irregular outlines;" a 75-mm juvenile has large pale spots (Böhlke, et al., 1989: 137-138).

There are several superficially similar species of white-spotted morays that could be confused with *Enchelycore nycturanus*. *Gymnothorax eurostus* (Abbott, 1860) is common in South African waters, and some individuals have jaws that are slightly arched and may leave a small gap when the mouth is closed. *Gymnothorax eurostus*, however, almost always has some dark spots overlying the white spots anteriorly, and the snout is usually spotted as well. Although it has a similar configuration of intermaxillary teeth (i.e., five rows), the maxillary teeth are clearly biserial rather than triserial. In addition, *G. eurostus* has fewer vertebrae (ca. 125-126). *Gymnothorax meleagris* has a black spot around the gill opening and a distinct white patch at the tip of the tail. It has biserial maxillary teeth, its jaws are not arched, and it has fewer vertebrae (127-132). *Gymnothorax johnsoni* (Smith, 1962) has a similar vertebral count, but it does not have arched jaws, the intermaxillary teeth are in three rows, and the maxillary teeth are biserial, with only a few teeth in the inner series.

Distribution. This species is known so far only from Aliwal Shoal off the coast of South Africa south of Durban. It has not been collected at Sodwana Bay farther north, which has been surveyed extensively in recent years. The east coast of South Africa extends from near tropical conditions at its northern border into temperate waters at its southern tip. This area contains an extensive cool-water, continental habitat that has no equivalent elsewhere in the western Indian Ocean. *Enchelycore nycturanus* may well be endemic to this area, whose fauna is just beginning to be revealed.

Etymology. From the Greek *nyktos* (night) and *ouranos* (sky), in reference to the color pattern of this species, which resembles a field of stars on a dark sky. A noun in apposition.

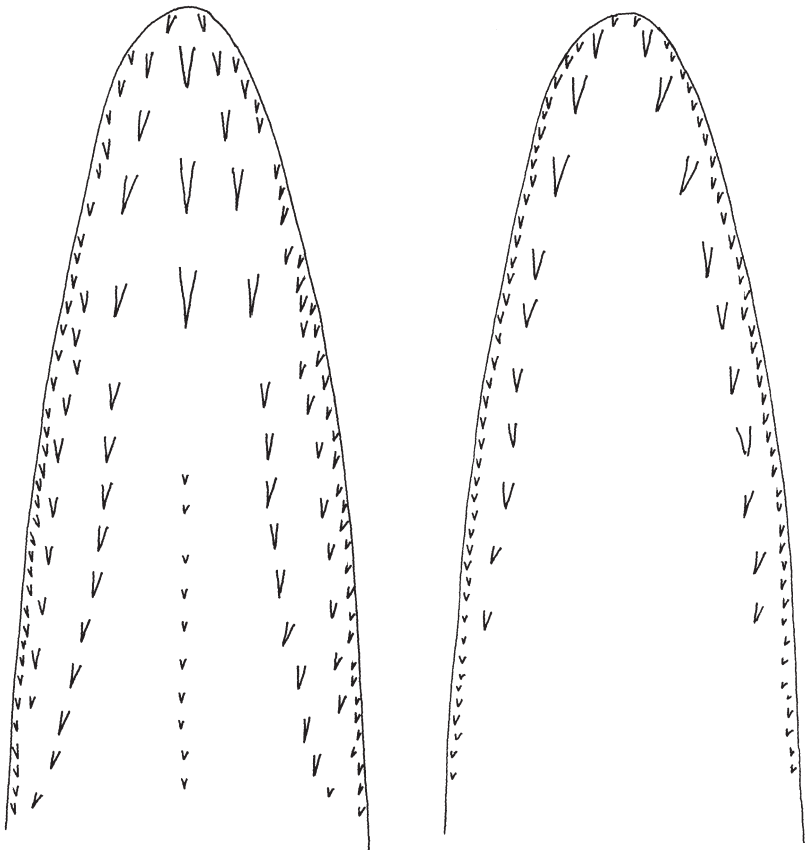


FIGURE 3. Diagram of dentition of *Enchelycore nycturanus* **sp. nov.** composite; upper jaw, left; lower jaw, right.

Acknowledgments

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